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10/526,205

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EXAMINER

LEADER, WILLIAM T

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,205	Applicant(s) YOSHIDA ET AL.	
	Examiner WILLIAM T. LEADER	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-29 is/are pending in the application.
- 4a) Of the above claim(s) 10-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt of the papers filed on November 9, 2009, is acknowledged. Claims 1-9 have been canceled. New claims 15-29 have been presented. Claims 10-14, non-elected without traverse, remain withdrawn from consideration.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

3. The drawings were received on November 9, 2009. These drawings are acceptable.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 15, 16, 19-24 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. New claim 15 recites the step of generating an oxide film having a plurality of pores and the step of supplying hydrochloride acid as a sealing suppressing ion generating agent to suppress sealing effect caused by a hydrate which is generated in the pores. At page 9 of the Remarks, applicant indicates that support for new claim 15 can be found in the specification at

page 2, lines 6-8 and page 19, line 5 to page 20, line 3. Neither of these portions of the specification refers to “hydrochloride acid” as now recited. Rather, page 19, lines 6-8 state that a predetermined quantity of hydrochloric acid (HCl), which is a chlorine ion generating agent, is supplied to water as a sealing suppressing generating agent so that chloride ion is generated. “Hydrochloride” is defined by Hackh’s Chemical Dictionary as “A salt of hydrochloric acid and an organic base, especially an alkaloid, usually more soluble than the base. It differs from chlorides in retaining the H atom.” It is not clear what compounds applicant intends to include within the scope of the claim by reciting “hydrochloride acid”. Based on the specification, it appears that the chlorine ion is the sealing suppressing ion and hydrochloric acid is the generating agent.

7. It is noted that claim 17 which is dependent on claim 15 recites hydrochloric acid is supplied. Since a dependent claim must further limit the claim on which it depends, the hydrochloric acid of claim 17 must be different than the hydrochloride acid of claim 15 or claim 17 would not further limit claim 15.

8. New claim 24 recites a “catalyst carrying solution.” A catalyst is “a substance whose presence increases the rate of a chemical reaction; . . . any kind of substance (solid, liquid or gas) may be a catalyst, but only certain particular substances are catalysts for a particular reaction.” (Condensed Chemical Dictionary, seventh edition). The limitation “catalyst carrying solution” is not clear because it is not possible to determine what materials fall within its scope.

9. The term "highly" in claim 24, line 4 is a relative term which renders the claim indefinite. The term "highly" is not defined by the claim, the specification does not provide a standard for

ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

10. New claim 26 recites a source of ions for suppressing sealing of pores. The scope of “ions for suppressing sealing” is not clear. It is not recited by what mechanism or reaction sealing occurs. As stated in paragraph 9 of the previous office action, the text *Electroplating* by F. A. Lowenheim, describes a process for the production of an anodic oxide coating on aluminum in which a porous layer of oxide is formed. Lowenheim explains that the utility and performance of anodic coatings on aluminum often depend upon the type and quality of postanodizing treatment employed. “The term *sealing* generally denotes a treatment which renders the coating nonabsorptive or introduces into the coating a material that enhances or modified the characteristics of the anodic coating.” Lowenheim discloses that one method sealing is to subject the anodic coating to pure water at elevated temperatures where the water reacts with the surface of the aluminum oxide by the reaction $\text{Al}_2\text{O}_3 + \text{H}_2\text{O} \rightarrow 2\text{AlOOH}$. See page 463. Lowenheim also discloses sealing by using a wax, by applying a lacquer, or by impregnating with an organic material in the vapor phase. See page 466. Since in claim 26 it is not clear in what way sealing occurs, it is not possible to determine what ions would suppress sealing.

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 24 recites "the water received in the treatment vessel is distilled water combined with a catalyst carrying solution." Claim 24 depends on claim 17 which, in turn, depends on claim 15. Claim 15, lines 2-3 recite "dissolving carbon dioxide that is pressurized to atmospheric pressure or higher into water contained in a treatment vessel that further contains an object to be treated to obtain, in the treatment vessel, a pressurized carbonated water of pH 3 to 4 that is an electrolytic solution". Claim 15, lines 9-10 recite "electrolyzing the object to be treated in the obtained electrolytic solution contained in a treatment vessel." The antecedent for "the water" in claim 24 is the water contained in a treatment vessel in claim 15 which is used in the step of electrolyzing the object to be treated. Thus, claim 24 recites combining a catalyst carrying solution with the electrolyte used to electrolyze the object.

13. At page 10 of the Remarks, applicant states that support for new claim 24 can be found at page 34, line 7 to page 35, line 13. Page 33, line 2 to page 34, line 6, which precede the section identified by applicant, describe the formation of an anodic oxide film on the object 3 in an electrolytic treatment vessel 1 containing carbonated water as an electrolytic solution. Page 34, lines 7-12 disclose "Thereafter [i.e., after the anodic oxidation] the object 3 and the cathodic member 4 are separated from the power source device, and they are temporarily recollected from the electrolytic vessel 1. After the electrolytic vessel 1 is cleaned by water washing or the like

and dried, a predetermined quantity of catalyst carrying solution 39 composed of palladium chloride (PdCl_2) as a catalyst substance generating source is received in the electrolytic vessel 1". The step of providing a catalyst carrying solution as described by the specification is a separate step performed after the electrolyzing step. There is no basis in the specification as filed for the limitations of new claim 24.

14. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for suppressing the sealing of pores in an aluminum oxide layer by suppressing a hydration reaction using chlorine ions, does not reasonably provide enablement for the selection of ions that can be used to suppress sealing of other materials by other mechanisms. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. It appears that the only sealing described in applicant's specification is the sealing of pores in an aluminum oxide film formed by anodic oxidation. A hydration reaction under the pressure and heating of carbonic water generates a hydrate in the pores. The hydrate grows or expands to block or reduce the pores, thus effecting the sealing treatment (paragraph [0090]). Applicant's specification provides no guidance as to suppressing sealing of materials other than a porous aluminum oxide layer, or as to suppressing sealing when sealing occurs other than by a hydration reaction. Additionally, other than listing four specific ions, applicant provides no teaching as to how one of ordinary skill in the art would determine what ions would be effective in suppressing sealing of porous aluminum oxide by hydration.

Claim Rejections - 35 USC § 103

15. Claims 15-24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over UK patent 706,739 to the Glen L. Martin Company in view of Tsuji (US 5,409,156), Murota et al (US 7,078,155) and Maget (US 4,239,607).

16. The UK '739 patent is directed to an anodic oxidation method. An aluminum workpiece is made the anode in an electrolytic cell having a lead cathode and an aqueous electrolyte. The desired oxide coating is produced on the workpiece by passing an electric current having a suitable voltage and current density with the workpiece as the anode. See page 1, lines 57-71. The electrolyte may be formulated by introducing carbon dioxide gas under pressure through a series of orifices located throughout the plating tank at a rate so as to insure an excess of carbon dioxide. See page 2, lines 30-65. The electrolyte additionally contains sulfuric acid. See page 2, lines 77-80. The UK patent is silent as to the pH of the electrolyte.

17. Independent claim 15 differs from the process of the UK '739 patent by reciting a pH of 3 to 4. Claim 15 additionally differs by reciting supplying hydrochloride acid as a sealing suppressing ion generating agent. For the reasons given in the rejection under 35 U.S.C. 112, this limitation is interpreted as supplying a source of chlorine ions.

18. The Tsuji patent discloses that an aluminum workpiece can be anodized in an acidic solution having a pH of 4 or less. The acid which constitutes the acidic solution may be selected from inorganic and organic acids including sulfuric acid. See the abstract and column 4, lines 32-36.

19. The Murota patent discloses that in the anodization of an aluminum workpiece, the electrolyte used may comprise components commonly included in tap water. The electrolyte may include chloride ions in a concentration ranging from 0 to about 10,000 ppm (column 13, lines 53-64).

20. The Maget discloses that chlorine is widely used for water treatment. Since the use of compressed chlorine gas may create hazards, less hazardous chemicals such as dilute hydrochloric acid may be used in water treatment facilities. See column 1, lines 45-57.

21. The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized an anodizing electrolyte which had a pH of 4 or less because acidic electrolytes with a pH in this range are effective in anodizing an aluminum workpiece as taught by Tsuji. It would have additionally been obvious to have utilized tap water containing chlorine ions as the source of water in making the aqueous electrolyte of the UK '739 patent as disclosed by Murota because tap water is readily available and generally inexpensive, and to have utilized hydrochloric acid to have provided chlorine ions in the water as taught by Maget because chlorine is widely used in water treatment and hydrochloric acid as a less hazardous source of chlorine than chlorine gas.

22. With respect to claim 16, as noted above, in the process of the UK '739 patent, an oxide coating is generated on the workpiece using carbonated water.

23. With respect to claims 17, 26 and 27, as noted above, Maget discloses the use of hydrochloric acid to provide chlorine ions to treat water.

24. With respect to claims 18 and 28, as noted above, Murota indicates that tap water may be used in the anodization of an aluminum workpiece and recognized that this water may contain chlorine ions.

25. With respect to claim 19, since the references suggest using tap water which contains chlorine ions for anodic oxidation, sealing suppressing treatment would have been carried out simultaneously with generation of the oxide film and sealing.

26. With respect to claim 20, Murota indicates that the concentration of chlorine ions may range from 0 to about 10,000 ppm.

27. With respect to claim 21, the workpiece of the UK '739 patent is immersed in the anodizing electrolyte solution for a predetermined time. Pores would have been enlarged in the same manner as in applicant's claimed process.

28. With respect to claim 22, the UK '739 patent teaches that the coating may be dyed. See page 2, lines 125-129.

29. Claim 23 recites a supercritical or subcritical carbon dioxide. The critical point is defined by the critical pressure and the critical temperature. For carbon dioxide the critical pressure is 72.9 atm/7.39MPa, while the critical temperature is 31.1°C. Carbon dioxide is considered to be in a supercritical state when its pressure is above the critical pressure and the temperature is above the critical temperature. Carbon dioxide is considered to be in a subcritical state when the pressure or temperature is below the critical value. The electrolyte of the '739 patent is in a subcritical state.

30. Claims 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over UK patent 706,739 to the Glen L. Martin Company in view of Tsuji (US 5,409,156).

31. The UK '739 patent and Tsuji are interpreted and applied as above. It would have been obvious at the time the invention was made to have utilized an anodizing electrolyte which had a pH of 4 or less in an anodizing process such as that of the UK '739 patent because acidic electrolytes with a pH in this range are effective in anodizing an aluminum workpiece as taught by Tsuji

32. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over UK patent 706,739 to the Glen L. Martin Company in view of Tsuji (US 5,409,156), Murota et al (US 7,078,155) and Maget (US 4,239,607) as applied to claims 15-24 and 26-28 above, and further in view of WO 00/77135 to Chao et al.

33. Claim 29 additionally recited a step of degreasing the object to be treated using supercritical carbon dioxide. The UK '739 patent discloses pretreating by cleansing to make sure that the workpieces are clean and free from grease and dirt or dust (page 2, lines 117-124). The Chao publication discloses that carbon dioxide, both liquid and supercritical, exhibits solvating properties typical of hydrocarbon solvents. It is a suitable degreasing/cleaning medium for the removal of light oils from commercial and industrial parts and components. See page 1, line 21 to page 2, line 4. It would have been obvious to have performed the degreasing pretreatment of the UK '739 patent using supercritical carbon dioxide as taught by Chao because it is recognized as an effective cleaning agent for industrial parts.

Double Patenting

34. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

35. Claims 15-29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. 7,037,420 in view of Murota et al (US 7,078,155) and Maget (US 4,239,607).

36. Independents claim 15 differs by reciting supplying hydrochloride acid as a sealing suppressing ion generating agent. For the reasons given in the rejection under 35 U.S.C. 112, this limitation is interpreted as supplying a source of chlorine ions. It would have been obvious at the time the invention was made to have utilized tap water containing chlorine ions as the source of water in making the aqueous electrolyte of the UK patent as disclosed by Murota because tap water is readily available, and to have utilized hydrochloric acid to have provided chlorine ions in the water as taught by Maget because chlorine is widely used in water treatment and hydrochloric acid as a less hazardous source of chlorine than chlorine gas as taught by Maget.

37. Claim 25 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. 7,037,420. Although the conflicting claims are not identical, they are not patentably distinct from each other because they recite the same general processing steps.

Response to Arguments

38. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM T. LEADER whose telephone number is (571) 272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William Leader/
April 23, 2010

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795